

REMARKS

This responds to the Office Action dated April 27, 2005.

Claims 14-16 and 24-29 were rejected. Claims 1-13 and 17-23 were subject to a restriction requirement and an election of species requirement.

Applicant hereby cancels claims 1-13 and 29.

Claim Objections

In claim 29 line 1 the expression "holes" has been changed to --openings--, as suggested by the examiner.

Claim Rejections - 35 U.S.C. § 112

Claim 24 was rejected as indefinite, since it includes the limitation "said opposed lateral edges" on line 5. This claim has been modified so as to include a proper antecedent for this expression.

Claim 24 was further rejected as indefinite as not having an antecedent for "said male and female interlocking connectors." The claim has been modified so as to properly set forth this expression.

Claim Rejections - 35 U.S.C. § 102

Claims 14 and 25 were rejected under § 102(b) as being anticipated by Dingler (5,511,355). Dingler does not disclose an expanded metal strengthening sheet that defines an array of equally spaced openings.

Applicant's claim 14 describes a strengthening sheet 12 that is an expanded metal sheet having an array of equally spaced openings 14 formed therethrough. The exterior body of water-impermeable material is positioned about and in contact with the reinforcing structure and extends through the array of equally spaced openings and uniformly connects the exterior body to the elongate reinforcing structure. The reinforcing structure being encapsulated in the exterior body. The array of equally spaced openings provides an increased surface area to which the exterior body can engage.

The array of equally spaced openings in the strengthening sheet provide a uniform connection of the exterior body on one side of the sheet to the exterior body on the other side of the sheet, *directly through the sheet*. This provides for the application of forces applied to the proximal end of the structural member along the length of the structural member to be transmitted through the exterior body to the material of the external body extending through each of the equally spaced openings and to the strengthening sheet. The material of the exterior body that extends through the openings applies the forces from the exterior body to the strengthening sheet. The forces applied to the strengthening sheet are transmitted by the strengthening sheet to the rest of the exterior body, to the distal end of the structural member.

Further, the configuration of an expanded metal sheet is such that expansion and contraction of the overall sheet due to temperature changes, etc. can be significantly less than that of a solid sheet where there is a straight path to be followed by the forces of expansion. In contrast, expanded metal has a foraminous configuration with the openings longitudinally offset from one another so that when force resulting from a temperature change is applied to one edge of the sheet, the forces must be transmitted through the expanded metal sheet along a non-linear path. Therefore, the metal extending about the openings of the sheet tends to more readily bend, thereby tending to change the shape of the openings of the foraminous shape, as opposed to transmitting the entire force from one edge straight through a solid sheet to the other edge of the sheet.

Further, Dingler does not disclose an exterior body of water impermeable material positioned about and in contact with the reinforcing structure. For example, Dingler states that (sheet 2 of the drawing and column 5, beginning at line 28):

-- the plastic 47 is formed according to Fig. 12, that is to say in the system plane 12 there is 50% material and the rest is cavity. The density then symmetrically increases toward the outside and then reaches 100% in each case in the outer areas.

While Dingler discloses holes 13 in the lamination 11 (Fig. 1), Dingler also states:

There are holes 13 not only in the middle region 17. In particular, they are provided in the head region 29 and in the foot region 46, even if they are not shown. The plastic can expand freely through these holes into the two outer webs 54, 56 and also penetrate there, so that a construction according to Fig. 3 is obtained. This can also be used to control how the density of the plastic is in the two outer webs 54, 56.

The less holes there are, the more solid the plastic is in the outer webs 54, 56, which after all have to accept in particular the shear stresses and tensile stresses.

From the above, it should be understood that Dingler does not teach the uniform connection of the outer material to the lamination 11.

Further, Dingler teaches that its outer lamination 51 (Fig. 3) is a polymer which is pore-free on the outside and is denser than the inner plastic 47. This tends to teach away from a firm connection of the outer material through the interior lamination.

Claim Rejections - 35 U.S.C. § 103

Claims 14, 15 and 25-29 were rejected under § 103(a) as being unpatentable over Nottingham (6,715,964) in view of Ellison, et al. (2003/0003828). Nottingham (Fig. 7) was cited to disclose a reinforced structural member. However, Ellison, et al. concerns the minimization of color thinning in a molded product. A reinforcing material, such as a textile, fiberglass mat, or scrim, or metal mesh are disclosed beginning at Paragraph 0022 of Ellison, et al. However, when Ellison, et al. is used in combination with Nottingham, the combination does not disclose expanded metal sheet material that defines an array of equally spaced openings therethrough with the exterior body and permeable material positioned about and in contact with the reinforcing structure and extending through the array of equally spaced openings and uniformly connecting the exterior body to the elongate reinforcing structure, with the reinforcing structure being encapsulated within the exterior body.

Applicant's invention concerns a durable, strong product suitable for use as panels that form a retaining wall, with the panels being significantly improved over the prior art in that they provide increased durability and strength, with the panels being formed such that they can be continuously produced, as by extrusion. This is enhanced by the uniform connection of the exterior material through the interior laminate, with the laminate being formed in a foraminous structure to provide the increased bonding surface presented to the exterior material.

Applicant's claim 16 is rejected as unpatentable over Nottingham, Ellison, et al., and Lewis (5,333,971). Claim 16 depends from claim 15 which depends from claim 14, and includes a thickness limitation not specifically disclosed in the applied references, and adds the feature of the shape of the substantially planar elongate central wall and the pair of side walls extending along the

opposed edges of the central wall. Lewis is cited to show this. However, the references fail to show the limitations of claim 14 as recited above.

The references of record do not disclose the features of claim 27, including the sheet of high strength foraminous material that defines an open network of uniformly spaced openings, with the exterior body of water-impermeable synthetic material surrounding the reinforcing structure, with the exterior body locked to the reinforcing structure by the exterior body extending through the openings of the reinforcing structure, with the overall structure having an impact area at its ends for receiving impacts during the driving of the structural member into the ground, and so that the longitudinal forces received at the end of the structural member are transmitted through the reinforcing structure from one end to the other end of the reinforcing structure.

Claim 28 was rejected on the basis of its being a method of forming an exterior body, instead of being a pure apparatus claim. However, the product is only characterized by having been extruded onto the reinforcing structure. This limitation describes a structural configuration that is imparted by extrusion that integrally connects the exterior body to opposite sides of the elongated reinforcing sheet. Therefore, reconsideration of this rejection is requested.

Claim 28 has also been amended to set forth the adjacent parallel lines of openings of the reinforcing structure, with each line of openings longitudinally offset from the openings of the adjacent lines. This provides a configuration that is compatible with different rates of thermal expansion of the materials of the invention.

New independent claim 30 describes a rectilinear structural member formed in a cross-sectional shape for continuous manufacture, having a cross-sectional shape that is approximately a spread U-shape with laterally extending side walls and side locking elements. In particular, the claim sets forth an elongate reinforcing structure of expanded metal foraminous sheet material that defines an array of equally spaced openings therethrough. The exterior body of water impermeable material is positioned on opposite sides of the foraminous sheet material and in contact with the foraminous sheet material and extending through the array of equally spaced openings of the foraminous sheet material. This causes the water impermeable material to be uniformly connected to itself through the foraminous sheet material. This protects the foraminous sheet material from the atmosphere, and the foraminous sheet material provides impact and tensile strength characteristics to the overall structure.

Substitute Drawings

Applicant is submitting herewith substitute drawings for the application. The drawings filed with the application were considered as informal. The substitute drawings are believed to comply with the requirements of the Office.

Respectfully submitted,


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